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Abstract: The aim of this study was to compare the prevalence rate and factor structure of posttraumatic stress disorder (PTSD) based on the diagnostic criteria of the fourth and fifth editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; DSM-5; American Psychiatric Association, ,) in traumatized refugees. There were 134 adult treatment-seeking, severely and multiply traumatized patients from various refugee backgrounds were assessed in their mother tongue using a computerized set of questionnaires consisting of a trauma list, the Posttraumatic Diagnostic Scale, and the new PTSD items that had been suggested by the DSM-5 Task Force of the American Psychiatric Association. Using DSM-IV, 60.4% of participants met diagnostic criteria for PTSD; using DSM-5, only 49.3% fulfilled all criteria ($p < .001$). Confirmatory factor analysis of DSM-IV and DSM-5 items showed good and comparable model fits. Furthermore, classification functions in the DSM-5 were satisfactory. The new Cluster D symptoms showed relatively high sensitivity, specificity, positive predictive power, and negative predictive power. The DSM-5 symptom structure appears to be applicable to traumatized refugees. Negative alterations in cognitions and mood may be especially useful for clinicians, not only to determine the extent to which an individual refugee is likely to meet criteria for PTSD, but also in providing targets for clinical intervention.

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A Comparison of DSM-5 and DSM-IV Diagnostic Criteria for Posttraumatic Stress Disorder in Traumatized Refugees

Ulrich Schnyder, [1] Julia Müller, [2], Naser Morina,[1] Matthis Schick,[1] Richard A. Bryant,[3] Angela Nickerson[3]

[1]Department of Psychiatry and Psychotherapy, University Hospital, University of Zurich, Culmannstrasse 8, 8091 Zurich, Switzerland

[2] Psychiatric Hospital, Spital Thurgau AG, Seeblickstrasse 3, 8596 Münsterlingen, Switzerland

[3]School of Psychology, University of New South Wales, Sydney, N.S.W., 2052, Australia

Author Note

Ulrich Schnyder and Julia Müller contributed equally to this paper.

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Correspondence concerning this article should be addressed to Ulrich Schnyder, M.D., Department of Psychiatry and Psychotherapy, University Hospital, University of Zurich Culmannstrasse 8, 8091 Zurich, Switzerland. E-mail: ulrich.schnyder@access.uzh.ch

Abstract

The aim of this study was to compare the prevalence rate and factor structure of posttraumatic stress disorder (PTSD) based on the diagnostic criteria of the fifth and fourth editions of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5 and DSM-IV), in traumatized refugees. A total of 134 adult treatment-seeking, severely and multiply traumatized patients from various refugee backgrounds were assessed in their mother tongue using a computerized set of questionnaires consisting of a trauma list, the Posttraumatic Diagnostic Scale, and the new PTSD items that had been suggested by the DSM-5 Task Force of the American Psychiatric Association. Using DSM-IV, 60.4% of participants met diagnostic criteria for PTSD; using DSM-5, only 49.3% fulfilled all criteria ($p < .001$). Confirmatory factor analysis of DSM-IV and DSM-5 items showed good and comparable model fits. Furthermore, classification functions in DSM-5 were satisfactory. The new cluster D symptoms showed relatively high sensitivity, specificity, positive predictive power, and negative predictive power. The DSM-5 symptom structure appears to be applicable to traumatized refugees. Negative alterations in cognitions and mood may be especially useful for clinicians, not only to determine the extent to which an individual refugee is likely to meet criteria for PTSD, but also in providing targets for clinical intervention.

A Comparison of DSM-5 and DSM-IV Diagnostic Criteria for Posttraumatic Stress Disorder in Traumatized Refugees

Refugee mental health is a crucial public health concern (Fazel, Wheeler, & Danesh, 2005; Harris & Telfer, 2001; Maier, Schmidt, & Mueller, 2010). There are estimated to be over 45 million refugees and internally displaced persons worldwide, and the number is growing markedly in recent times (UNHCR, 2012). Consistently across the continents, a high percentage of refugees report severe, multiple and sequential traumatization, including exposure to life-threatening situations, torture, and traumatic bereavement (Hollifield et al., 2002). Accordingly, high rates of trauma-related psychological disorders, including posttraumatic stress disorder (PTSD), depression, anxiety and somatoform disorders, have been documented in refugees (Fazel et al., 2005; Heeren et al., 2012; Johnson & Thompson, 2008).

With the introduction of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the diagnostic criteria for PTSD now consist of four rather than three symptom clusters (APA, 2013). Particularly pertinent to the experience of many refugees was the inclusion of the ”negative alterations in cognitions and mood” cluster of symptoms that may reflect more diverse and potentially complex reactions to trauma, including pervasive problems with anger, guilt, and shame.

Since the introduction of DSM-IV, many studies have investigated the latent structure of the PTSD symptoms. These studies have typically identified four-factor structures that are characterized by a numbing model comprising intrusions, effortful avoidance, emotional numbing, and hyperarousal (King, Leskin, King, & Weathers, 1998), or a dysphoria model comprising intrusions, effortful avoidance, dysphoria, and hyperarousal (Simms, Watson, & Doebbeling, 2002). In terms of DSM-5, several confirmatory factor analyses have been reported. Elhai et al. reported in an initial study that the DSM-5 model fit was superior to the dysphoria

four-factor model in a nonclinical sample of college students (Elhai et al., 2012). Two other studies also reported the acceptability of the DSM-5 model (Biehn et al., 2013; Contractor et al., 2013), although another study did find that the dysphoria model fitted better than the DSM-5 model (Miller et al., 2013). A recent study of Chinese survivors of a major earthquake found that a six-factor model provided the best fit, comprising intrusions, avoidance, negative affect, anhedonia, dysphoric arousal, and anxious arousal (Liu et al., 2014).

Several studies reported comparable PTSD rates according to the DSM-IV and DSM-5 definitions of PTSD (Elhai et al., 2012; O'Donnell et al.). To the best of our knowledge, however, the DSM-5 diagnostic criteria have not yet been tested in refugees. Trauma is a global issue (Schnyder, 2013), and we need a "culturally competent model of traumatic stress" (Osterman & de Jong, 2007), page 439). Therefore, validation of the newly introduced symptom structure across cultures and various types of trauma exposure is important. The aim of this study was to examine the prevalence rate and factor structure of PTSD based on the diagnostic criteria of DSM-5 as compared to the DSM-IV, in a culturally diverse clinical sample of treatment-seeking refugees who had survived war and/or torture.

Method

Participants and Procedure

The data presented in this paper were collected between May 2012 and August 2013 in the context of a broader study of adjustment of traumatized refugees (Nickerson, Bryant, et al., 2015; Nickerson, Schnyder, et al., 2015). Participants were refugees or asylum seekers who had survived war and/or torture. They came from a variety of refugee backgrounds and were currently receiving treatment at the outpatient units for victims of torture and war in either Zurich or Bern for their trauma related mental health problems. Treatment typically consisted of supportive and

trauma-focused psychotherapy and pharmacotherapy, and, depending on the individual situation, a variety of physical interventions such as physiotherapy, physical exercises, etc. Treatment duration at the time of assessment varied between 0 and 107 months (mean = 30.31 months). Further inclusion criteria were written informed consent, being 18 years or older, and speaking one of the study languages, that is, German, English, Turkish, Arabic, Farsi, and Tamil. Patients were excluded if they were unable to use a therapist-assisted computer-based assessment tool (Knaevelsrud & Müller, 2007), or to fill in self-report questionnaires, if they were pregnant, if they had a severely impaired distress tolerance (severe dissociative symptoms) or were currently suffering from psychosis or were acutely suicidal or a threat to others. Furthermore, patients were excluded if a diagnosis of borderline personality disorder or cognitive impairment had been established by their therapist (psychiatrist or clinical psychologist).

The study was approved by the Ethics Committee of the Cantons of Zurich and Bern, Switzerland, and was conducted in compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki). A therapist-assisted computer-based assessment tool (MultiCASI) was used to implement the self-report measures (Knaevelsrud & Müller, 2007). In MultiCASI, participants can read each item and the range of possible responses in their respective mother tongue on a tablet screen and – in case of illiteracy – can listen to the audio-recorded items/responses. Items are answered by touching the screen. The purpose of the study was explained to potential participants by their therapist or a study team member. Written informed consent was obtained from all participants. Participants were informed that they were free to withdraw from the study at any time without jeopardizing their ongoing treatment. Participants attended a research assessment of 60-120 minutes duration. Assessments were performed by a psychiatrist, a clinical psychologist with a minimum of 3 years of experience in working with traumatized refugee populations, or supervised master-level students of clinical

psychology who had been thoroughly trained in dealing with traumatized refugees and had to observe treatment sessions for a month before commencing with assessments. Participants obtained CHF 40 (approximately USD 40) for participation.

During the recruitment period, a total of 255 patients were undergoing treatment at the two facilities mentioned above. Out of these, 190 patients spoke one of the six study languages. Out of these, 25 did not fulfill the inclusion criteria or had to be excluded (pregnancy, main trauma not war- related, borderline personality disorder). 13 patients were not asked to participate because according to their therapists, they were currently undergoing major life crises, e.g. they were acutely suicidal. Thus, 152 patients were deemed eligible for the study. Informed consent was provided by 137 patients (90.1%), but only 134 patients (Zurich: 99; Bern: 35) participated in the study; three patients failed to attend the research session. One patient whose data were included in the analysis terminated the assessment after answering 52.0% of the questionnaire items.

Sociodemographic characteristics of the sample are shown in Table 1. Participants had experienced a mean of 12.25 (SD = 4.54) types of traumatic events. Over 85% of the sample had been tortured (N = 114, 85.1%), and over three-quarters had experienced forced isolation from others (N = 103, 78.0%), had been imprisoned (N = 103, 78.0%), assaulted (N = 101, 75.4%) or had been exposed to combat situations (N = 101, 75.4%).

Measures

The measures used in this study have been used across multiple cultural groups. They were translated into Turkish, Arabic, Farsi and Tamil by accredited translators. Blind back-translation procedures were also implemented (Bontempo, 1993), with differences between the two translations being rectified by independent bilingual individuals experienced in working with health-related questionnaires.

Trauma exposure was measured by combining the trauma event lists of two standardized questionnaires, the Harvard Trauma Questionnaire (HTQ; (Mollica et al., 1992) and the Posttraumatic Diagnostic Scale (PDS; (Foa, 1996; Foa, Cashman, Jaycox, & Perry, 1997). This combined scale indexes exposure to 23 types of traumatic events associated with the refugee experience and traumatic experiences associated with other civil trauma. A count of the number of types of traumatic events experienced by each participant was computed, and a dichotomous variable indicating whether or not they had been exposed to trauma was created.

The third part of the PDS (Foa, 1996; Foa et al., 1997) was used to measure PTSD symptom severity with regard to the past month. The PDS has been used with several refugee groups. As data collection started a year prior to the introduction of the DSM-5, we added the required additional items to take into account expected changes in the concept and diagnosis of PTSD (APA, 2010; Friedman, Resick, Bryant, & Brewin, 2011). Specifically, the following items were added: persistent negative expectations about oneself or the world (D2), persistent distorted blame or self or others (D3), pervasive negative emotional states (D4), reckless or self-destructive behavior (E2). Items in the PDS are measured on a four-point scale, comprising 0 = Not at all or only one time, 1 = Once a week or less/ once in a while, 2 = 2 to 4 times a week/ half the time, and 3 = 5 or more times a week/almost always. Probable PTSD diagnosis in terms of meeting all PTSD symptom criteria was determined by applying DSM-IV and DSM-5 criteria to symptoms in the PDS. In this study, a symptom was considered to be present if the participant reported that he/she rated a symptom as 2 or 3. Thus, consistent with DSM-IV criteria, a participant was considered to have a probable diagnosis of PTSD if he/she reported one or more re-experiencing symptoms, three or more avoidance symptoms, and two or more hyperarousal symptoms as present. Consistent with DSM-5 criteria, a participant was considered to have a probable diagnosis of PTSD if he/she reported one or more intrusion symptoms, one or more avoidance

symptoms, two or more negative alterations in cognition and mood, and two or more alterations in arousal and reactivity. Internal consistency for this scale was high (α =.94). It is important to note, however, that the PDS is a self-report measure, so it does not provide any standardized information about clinical impact or impairment.

Data Analysis

We used confirmatory factor analyses to evaluate the three-factor latent structure of PTSD symptoms in the DSM-IV, and the four-factor DSM-5 latent structure. There was less than 5% missing data in this sample, and listwise deletion was employed for missing data. Analyses were conducted using Mplus version 7 (Muthén & Muthén, 1998-2010). As variables had an ordinal rating scale, we implemented mean and variance-adjusted weighted least squares estimation (Flora & Curran, 2004; Wirth & Edwards, 2007). We used the following indices to evaluate model fit: Root Mean Square Error of Approximation (RMSEA) < 0.06, and Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values approaching .95 or greater (Hu & Bentler, 1998). As the chi-square statistic is unduly influenced by sample size (Schumaker & Lomax, 2004) we did not use this statistic to evaluate model fit.

We tested the three-factor model of PTSD described in the DSM-IV. In this model, symptoms B1 to B5 load on a re-experiencing symptoms factor; symptoms C1 to C7 load on an avoidance/numbing factor; and symptoms D1 to D5 load on a hyperarousal factor. Next, we tested the four-factor model of PTSD described in the DSM-5. In this model, symptoms B1 to B5 load on an intrusion symptoms factor; symptoms C1 and C2 load on an avoidance factor; symptoms D1 to D7 load on a negative alterations in cognitions and mood factor; and symptoms E1 to E6 load on an alterations in arousal and reactivity factor.

Next, we calculated the sensitivity, specificity, positive predictive power, and negative predictive power for each symptom in relation to the DSM-5 diagnosis of PTSD. We calculated

sensitivity by determining the probability that a symptom was present when a diagnosis of PTSD was present.. We calculated specificity by determining the probability that a symptom was absent when a diagnosis of PTSD was absent.. We calculated positive predictive power by determining the probability of meeting all symptom criteria for PTSD when a certain symptom was present.. We calculated negative predictive power by determining the probability that a probable PTSD diagnosis was absent when the symptom was absent.. This procedure was followed for all DSM-IV and DSM-5 symptoms of PTSD.

Results

According to the DSM-IV, 81 patients (60.4%) fulfilled symptom criteria for PTSD, whereas according to the DSM-5, 66 patients (49.3%) fulfilled symptom criteria for PTSD ($\chi^2(1, N = 134) = 78.71, p<.001$). Divided by gender, 63 men (60.0%) and 18 women (52.1%) met DSM-IV symptom criteria for PTSD, while 52 men (49.5%) and 14 women (48.3%) met DSM-5 symptom criteria for PTSD. Out of 66 patients who met symptom criteria for PTSD according to DSM-5, 65 (98.5%) also fulfilled symptom criteria for PTSD according to DSM-IV, whereas only one person (1.5%) did not fulfill DSM-IV PTSD symptom criteria. Out of 81 patients who met symptom criteria according DSM-IV, only 65 (76.5%) also met DSM-5 symptom criteria for PTSD, while 16 (23.5%) did not meet DSM-5 symptom criteria for PTSD. Thus, an overall discrepancy between DSM-IV and DSM-5 was found in 17 individuals (12.7%). Trauma type count correlated significantly with PTSD symptom levels according to DSM-IV ($r = .30, p < .001$) as well as DSM-5 ($r = .31, p < .001$).

The 3-factor DSM-IV model of PTSD evidenced adequate fit to the data: $\chi^2(116) = 198.60, p < .001$, CFI = .96, TLI = .96, RMSEA = .07, 90% Confidence Interval (CI) = [.05, .09]. In this model, most items evidenced loadings of .60 or greater, with the exception of

psychogenic amnesia, decreased interest or participation in significant activities, and irritability or outbursts of anger (Table 2).

The DSM-5 model of PTSD also evidenced adequate fit to the data $\chi^2(164) = 248.98$, $p < .001$, CFI = .93, TLI = .92, RMSEA = .07, 90% Confidence Interval (CI) = [.05, .08], SRMR = .06. Standardized factor loadings for the DSM-5 symptom criteria by item are presented in Table 2. Inspection of standardized factor loadings indicated that most items evidenced loadings of .60 or greater, with the exception of psychogenic amnesia, decreased interest or participation in significant activities, and irritability or outbursts of anger.

Frequency, sensitivity, specificity, positive predictive power and negative predictive power of DSM-5 PTSD symptoms in relation to a probable DSM-IV and DSM-5 PTSD diagnosis are displayed in Table 3. Overall, the items' classification functions were relatively strong, with coefficients ranging from 0.40 to 0.99.

Most of the items in the re-experiencing cluster of symptoms evidenced high sensitivity (range 0.74 to 0.97), but relatively lower specificity (range = 0.40 to 0.75); this finding was generally consistent across both DSM-IV and DSM-5 diagnoses, but more marked in the DSM-5 diagnosis for psychological and physiological distress to reminders. Similarly, symptoms in this cluster evidenced relatively higher negative predictive power (range = 0.61 to 0.97) than positive predictive power (0.61 to 0.84), with these findings again being consistent across the DSM-IV and DSM-5 diagnoses of PTSD.

In the avoidance cluster, the avoidance of thoughts and feelings symptom evidenced higher sensitivity (range = 0.82 to 0.91) than specificity (range = 0.67 to 0.69), across both DSM-IV and DSM-5 diagnoses. In contrast, the avoidance of activities, people or places symptom evidenced relatively similar sensitivity (range = 0.79 to 0.86) and specificity (range = 0.73 to 0.81) across

both diagnoses. Both of these symptoms, however, evidenced relatively higher positive predictive power (range = 0.81 to 0.88) than negative predictive power (range = 0.69 to 0.71) in the DSM-IV diagnosis, but relatively higher negative predictive power (range = 0.84 to 0.88) than positive predictive power (range = 0.73 to 0.77) in the DSM-5 diagnosis.

In the negative alterations in cognitions and mood cluster, inability to recall an important aspect of the trauma evidenced relatively low sensitivity (range = 0.53 to 0.55) and high specificity (range = 0.80 to 0.88) across both diagnoses. Similarly, this symptom evidenced relatively higher positive predictive power (range = 0.74 to 0.88) than negative predictive power (range = 0.53 to 0.64). Sensitivity and specificity were more similar for diminished interest and participation in activities across both diagnoses (sensitivity = 0.67, specificity range = 0.67 to 0.78). This symptom evidenced greater positive predictive power (0.83) than negative predictive power (0.61) in relation to the DSM-IV diagnosis of PTSD, but this difference was attenuated for the DSM-5 diagnosis of PTSD (positive predictive power = 0.66, negative predictive power = 0.68). Feelings of detachment evidenced greater sensitivity (0.81) than specificity (0.73) for DSM-IV; and this pattern was even stronger in relation to the DSM-5 diagnosis (sensitivity = 0.84, specificity = 0.64). This symptom evidenced greater positive predictive power (0.82) than negative predictive power (0.72) in relation to the DSM-IV diagnosis of PTSD; this pattern was reversed in relation to the DSM-5 diagnosis of PTSD (positive predictive power = 0.70, negative predictive power 0 0.81). Restricted range of affect evidenced relatively similar sensitivity (DSM-IV = 0.78, DSM-5 = 0.80) and specificity (DSM-IV = 0.82, DSM-5 = 0.70) across both diagnoses, and greater positive predictive power (0.88) than negative predictive power (0.70) in relation to the DSM-IV diagnosis of PTSD, with this difference being attenuated in relation to the DSM-5 diagnosis of PTSD (positive predictive power = 0.72, negative predictive power = 0.78).

In relation to the new DSM-5 symptoms in this cluster, persistent negative beliefs and blame evidenced relatively similar sensitivity (beliefs = 0.76; blame = 0.86)), specificity (beliefs = 0.75, blame = 0.72), negative predictive power (beliefs = 0.76, blame = 0.76), and positive predictive power (beliefs = 0.75, blame = 0.84). Strong general negative emotional state evidenced higher sensitivity (0.91) than specificity (0.70), and lower positive predictive power (0.75) than negative predictive power (0.89).

In relation to the alterations in arousal and reactivity cluster, taking a lot of risks (which was endorsed by 25% of participants only) evidenced low sensitivity (0.42) and higher specificity (0.92), and higher positive predictive power (0.85) and lower negative predictive power (0.61) in relation to the DSM-5 diagnosis. The symptoms of sleep difficulties, difficulty concentrating, and startle responses evidenced higher sensitivity (DSM-IV = 0.91, DSM-5 = 0.94) than specificity (DSM-IV = 0.54, DSM-5 = 0.46) across both diagnoses. Sleep difficulties and difficulty concentrating evidenced lower positive predictive power (sleep difficulties range = 0.63 to 0.76, concentration range = 0.65 to 0.79) compared to negative predictive power (sleep difficulties range = 0.80 to 0.89, concentration range = 0.94 to 0.97), while startle responses evidenced similar positive (0.83) and negative predictive power (0.80) in relation to the DSM-IV diagnosis, and higher negative predictive power (0.92) compared to positive predictive power (0.77) in relation to the DSM-5 diagnosis. Anger evidenced relatively similar sensitivity (range = 0.61 to 0.68) and specificity (0.72), and positive (range = 0.71 to 0.78) and negative predictive power (range = 0.53 to 0.69) across both diagnoses. Hypervigilance evidenced higher sensitivity (0.80) than specificity (0.43), and higher positive predictive power (0.83) than negative predictive power (0.70) in the DSM-IV diagnosis, but this pattern was reversed for the DSM-5 diagnosis (sensitivity=0.43, specificity = 0.67, positive predictive power = 0.72, negative predictive power = 0.83).

Discussion

To our knowledge, this is the first study investigating PTSD in traumatized refugees, using both DSM-IV and DSM-5 symptom criteria for PTSD. The new DSM-5 criteria identified a lower rate of patients meeting all symptom criteria for PTSD than the DSM-IV criteria (49.3% vs. 60.4%). This finding contrasts somewhat to previous findings that have suggested comparable rates between DSM-IV and DSM-5 (Elhai et al., 2012; O'Donnell et al., 2014; Stein et al., 2014). This is surprising: applying the DSM-5 symptom criteria, one could have expected to identify more probable cases of PTSD because the additional items included in DSM-5 broaden the scope for potentially meeting PTSD symptom criteria and the additional symptoms may be particularly relevant to the clinical sequelae of refugees. Refugees often experience complex reactions to repeated and prolonged trauma, and can manifest blame, anger outbursts, shame, guilt, impulsiveness, emotional dysregulation, and reckless behavior (Nickerson, Bryant, Steel, & Silove, 2011).

Confirmatory factor analyses revealed that in this sample, there was no substantial difference between the DSM-IV and DSM-5 conceptualizations of PTSD in terms of fit. This result is in accordance with previous studies that found equivalent good model fits (Biehn et al., 2013; Contractor et al., 2013; Elhai et al., 2012; O'Donnell et al., 2014), indicating that PTSD symptom criteria seem to be stable even across cultures. The DSM-5 symptom structure thus appears to be applicable to traumatized refugees.

Findings from classification analyses indicated that intrusive memories of the traumatic event evidenced high sensitivity but low specificity across both DSM-IV and DSM-5. This suggests that, while this symptom is usually present in individuals who fulfill symptom criteria for PTSD, it is also commonly reported by trauma survivors who do not have a diagnosis of PTSD. A similar pattern of results was found for the symptoms relating to psychological distress

to reminders. Taken together, these findings suggest that although intrusive memories and distress in response to these memories are common trauma sequelae, they are not necessarily indicative of PTSD. This finding accords with evidence that intrusive symptoms are common in other posttraumatic disorders, including depression and other anxiety disorders (Bryant, O'Donnell, Creamer, McFarlan., & Silove, 2011).

Regarding the new symptoms proposed for DSM-5, we found that persistent negative beliefs about the self, others, or the world, persistent extreme blame of the self or others, and strong general negative emotions evidenced relatively high sensitivity, specificity, positive predictive power, and negative predictive power. These patterns accord with cognitive models of PTSD that catastrophic appraisals are key to PTSD (Ehlers & Clark, 2000). This is also consistent with cognitive models of refugee adjustment that emphasize the role of moral injury and shame in psychopathological response to refugee experiences (Nickerson, Bryant, Rosebrock, & Litz, 2014; Nickerson, Schnyder, et al., 2015). This indicates that these symptoms are well-placed to distinguish between those with PTSD and those without. Accordingly, these symptoms may be especially useful for clinicians, not only in providing targets for clinical intervention, but to determine the extent to which the individual is likely to meet criteria for PTSD.

The DSM-IV symptom of foreshortened future, which has been excluded from the DSM-5 diagnosis for PTSD evidenced strong sensitivity, specificity, positive and negative predictive power. This suggests that this symptom may be useful for determining whether tortured refugees are likely to meet criteria for PTSD. One possible explanation for why this symptom may have performed well in the current study is the unique context of the refugee experience. The vast majority of refugees in the current study had been exposed to torture, which is a human-instigated traumatic event aimed at destroying the individual's sense of meaningful future. Further, it is likely that many of the participants in this study experienced significant uncertainty about their

future, including their position in the host society and the potential for reunification with family members. This may have contributed to the strong classification function of this symptom in this sample.

Strengths of the study were a relatively large sample size of treatment seeking, severely and multiply traumatized refugees, and the use of a therapist-assisted computer-based assessment tool that facilitated a very low rate of missing data. The distribution of nationalities in our sample was very similar to the current clinical reality of institutions that provide mental health care for refugees in Switzerland. A further strength was that none of the patients demonstrated any deterioration during assessment.

Several limitations of this study need to be taken into account. First, it would have been desirable to study a sample of refugees from one cultural group because in a mixed group, some important cultural differences may have been undetected. Second, we used self-rating questionnaires, rather than clinician-administered, structured interviews, to assess PTSD symptoms. Thus, we lacked any standardized information about clinical impact or impairment. Although this did not allow us to establish clinically valid diagnoses, correlations between self-rating and observer-rating PTSD symptom scores are typically very high (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). Third, participants were patients in different stages of treatment, with the number of months having undergone treatment at the time of assessment varying between 0 and 107 (mean = 30.3). Nevertheless, as this was not a treatment study but a cross-sectional assessment of PTSD symptoms, we don't believe that differences in treatment duration compromised the conclusions that were drawn from the study. Fourth, potential candidates for this study were screened by their therapists, who judged whether or not they were psychologically stable enough to participate in the study that addressed a number of explicit and potentially very distressing questions regarding their traumatic experiences. The requirement of

being able to use a computer may have selected a sample of relatively educated refugees, however, none of the participants were excluded because they were unable to use a computer. Moreover, there was an overrepresentation of men (78%) in our sample. Therefore, generalizability of our results – especially those regarding rates of refugees meeting PTSD symptom criteria – to other, more general populations of, e.g., non-treatment seeking, refugees is limited. Fifth, given that data collection took place prior to the release of the DSM-5, we used the DSM-IV wording, so the language of the DSM-5 diagnostic criteria for PTSD used in this study differed slightly from the final wording released in May 2013. Sixth, assessment instruments were translated into several languages. Even though this was done thoroughly and according to state of the art procedures (Bontempo, 1993), minor deviations in the wording or culture specific differences in the meaning and understanding of single words could not be ruled out. For example, items like "numbing" or "detachment" were difficult to translate, and are easily misunderstood. Finally, given the ongoing debate about the applicability of PTSD across cultures, our results need to be interpreted with caution. There is some evidence of the PTSD construct's cross-cultural validity, but trauma-related disorders may vary across cultures, so that, for example, somatic symptoms (currently not assessed in the DSM PTSD criteria) may be prominent in many cultures as a response to trauma (Hinton & Lewis-Fernández, 2011), or that cultural syndromes and local ethnopsychologies and ethnophysiologies may have influenced the salience of PTSD symptoms and may have influenced factor structure.

We note that the procedure for calculating sensitivity, specificity, positive predictive power and negative predictive power was limited by the fact that the item being investigated was also used to determine the presence or absence of a probable diagnosis of PTSD. This means that the symptom itself and meeting symptom criteria for PTSD were not independent. Future research should investigate the characteristics of individual items against a diagnosis that is made

independently. Moreover, future areas of research may include additional ways of comparing the clinical utility of DSM-IV and DSM-5 in refugees, e.g., looking into the correlations of trauma severity to PTSD symptom severity according to DSM-IV and DSM-5, respectively. Importantly, homogeneous samples of particular groups should be studied because cultural differences may then become apparent.

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Table 1

Sociodemographic Characteristics of Treated Traumatized Refugees

Variable	*M* or *n*	% or *SD*
Male gender	105	78.4
Age, years	42	9.9
Nationality		
Turkey	71	53.0
Iran	15	11.2
Sri Lanka	11	8.2
Bosnia	6	4.5
Iraq	6	4.5
Afghanistan	5	3.7
Others	20	14.9
Years of Education		
< 4	18	10.4
4-8	25	18.7
8-12	39	29.1
12+	49	36.6
Years in Switzerland	9.01	6.67
Types of trauma experienced	12.25	4.54

Note: N=134

Table 2

Standardized Factor Loadings for DSM-IV and DSM-5 Model of PTSD

PTSD Symptoms	IV	5
Re-experiencing (DSM-5: Intrusion symptoms)		
Recurrent and intrusive distressing recollections	.81	.79
Recurrent distressing dreams	.72	.72
Acting or feeling as if event were recurring	.75	.73
Emotionally upset (psychol. distress) when reminded of traumatic event	.89	.92
Physical (physiological) reactions when reminded of the traumatic event	.89	.89
Avoidance and numbing (DSM-5: Avoidance)		
Avoid thoughts, feelings, or conversations associated with the trauma	.64	.72
Avoid activities, places or people that arouse recollections of the trauma	.66	.71
Avoidance and numbing (DSM-5: Negative alterations in cognitions and mood)		
Inability to recall an important aspect of the trauma	.42	.41
Markedly diminished interest or participation in significant activities	.60	.56
Feeling of detachment or estrangement from others	.71	.70
Restricted range of affect	.70	.69
Sense of a foreshortened future	.66	--
Persistent negative beliefs about yourself, others, or the world	--	.79
Persistent extreme blame of yourself or others for what happened	--	.83
Strong general negative emotional state	--	.89
Increased arousal (DSM-5: Alterations in arousal and reactivity)	--	
Taking lots of risks or doing things that might hurt you	--	.74

Difficulty falling or staying asleep	.73	.71
Irritability or outbursts of anger	.56	.59
Difficulty concentrating	.76	.75
Hypervigilance	.81	.81
Exaggerated startle response	.87	.86

Note: N=134; DSM = Diagnostic and Statistical Manual of Mental Disorders; PTSD = Posttraumatic Stress Disorder

Table 3

Frequency and Diagnostic Indices of DSM-IV/DSM-5 PTSD Symptoms for DSM-IV/DSM-5 PTSD Diagnoses

Symptom	%	Sensitivity		Specificity		PPP		NPP	
Intrusion (B)		IV	5	IV	5	IV	5	IV	5
B1. Distressing recollections	73.9	.90	.90	.49	.40	.74	.60	.76	.82
B2. Distressing dreams	34.3	.70	.80	.53	.50	.72	.61	.61	.74
B3. Acting or feeling as if the trauma were recurring	56.7	.75	.74	.70	.59	.79	.63	.65	.70
B4. Psychological distress when reminded of trauma	70.9	.93	.97	.62	.54	.79	.67	.85	.95
B5. Marked physiological reactions when reminded of trauma	63.4	.88	.95	.75	.68	.84	.75	.79	.94
Avoidance (C)									
C1. Avoid thoughts, feelings, or conversations	61.2	.82	.91	.69	.67	.81	.73	.71	.88
C2. Avoid activities, people or places	54.5	.79	.86	.81	.73	.88	.77	.69	.84
Negative alterations in cognitions and mood (D)									
D1. Inability to recall an important aspect of the trauma	36.6	.53	.55	.88	.80	.88	.74	.53	.64
D2. Diminished interest or participation in significant activities	49.2	.67	.67	.78	.67	.83	.66	.61	.68
D3. Feeling of detachment or estrangement from others	59.8	.81	.85	.73	.64	.82	.70	.72	.81
D4. Restricted range of affect	53.7	.78	.80	.82	.70	.88	.72	.70	.78

D5. Persistent negative beliefs (DSM-5 only)	49.3		.76		.75		.76		.75
D6. Persistent extreme blame for what happened (DSM-5 only)	55.2		.86		.72		.76		.84
D7. Strong general negative emotional state (DSM-5 only)	59.7		.91		.70		.75		.89
Alterations in arousal and reactivity (E)									
E1. Taking risks or doing things that might hurt you (DSM-5 only)	24.6		.42		.92		.85		.61
E2. Difficulty falling or staying asleep	73.1	.91	.94	.54	.46	.76	.63	.80	.89
E3. Irritability or outbursts of anger	48.1	.61	.68	.72	.72	.78	.71	.53	.69
E4. Difficulty concentrating	76.3	.98	.99	.58	.46	.79	.65	.94	.97
E5. Hyper-vigilance	56.7	.80	.43	.74	.67	.83	.72	.70	.83
E6. Exaggerated startle response	62.3	.88	.94	.78	.70	.86	.77	.80	.92
Foreshortened future (DSM-IV only)	57.5	.83		.78		.86		.73	

Note. *N*=134. PPP = positive predictive power; NPP = negative predictive power